

AMENDMENT

Serial Number: 10/789,188

Filing Date: February 27, 2004

Title: METHOD AND APPARATUS FOR MEASURING ABSOLUTE AND NET POWER CONSUMPTION FOR COMPUTER SYSTEMS

Assignee: Intel Corporation

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Dkt: INT.P013 (INTEL)

**IN THE CLAIMS**

1. (Currently Amended) A method for managing power data, comprising:

determining an amount of power used ~~for~~by a system running an application over a first time period from power data supplied to an operating system by a battery over the first time period;

determining an amount of power used ~~for~~by the system in a baseline state over a second time period from power data supplied to the operating system by the battery over the second time period; and

determining a net power consumption of the application from the amount of power used ~~for~~by the system running the application and the amount of power used ~~for~~by the system in the baseline state.

2. (Currently Amended) The method of Claim 1, wherein determining the amount of power used ~~for~~by the system running the application comprises subtracting a power capacity value of ~~at~~the battery at an end of the first time period from a power capacity value of the battery at a beginning of the first time period.

3. (Currently Amended) The method of Claim 1, wherein determining the amount of power used ~~for~~by the system running the application comprises integrating a drain rate of the battery over the first time period.

4. (Currently Amended) The method of Claim 1, wherein determining the amount of power used ~~for~~by the system in the baseline state comprises subtracting a power capacity value of ~~at~~the battery at an end of the second time period from the power capacity value of the battery at a beginning of the second time period.

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5. (Currently Amended) The method of Claim 1, wherein determining the amount of power used ~~for~~by the system in the baseline state comprises integrating a drain rate of the battery over the second time period.

6. (Currently Amended) The method of Claim 1, wherein determining the net power consumption of the application comprises subtracting the amount of power used ~~for~~by the system in the baseline state over the second time period from the amount of power used ~~for~~by the system running the application over the first time period.

7. (Original) The method of Claim 1, wherein determining the net power consumption of the application comprises computing a first net power value using power capacity data and a second net power data using drain rate data.

8. (Original) The method of Claim 7, further comprising generating an indication if the difference between the first and the second net power values exceeds a threshold value.

9. (Currently Amended) The method of Claim 1, further comprising determining a systematic error of the power data used for determining the amount of power used ~~for~~by the system running the application.

10. (Original) The method of Claim 9, wherein determining the systematic error comprises:  
determining an update granularity of the power data; and  
dividing the update granularity of the power data by the first time period.

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11. (Original) The method of Claim 9, further comprising generating an indication if the systematic error exceeds a predetermined value.
12. (Original) The method of Claim 9, further comprising providing a suggested run-time to reduce the systematic error.
13. (Original) A method for managing power data, comprising:
  - collecting power data for a system running an application from an operating system over a first time period;
  - collecting power data for the system in a baseline state from the operating system over a second time period;
  - determining whether the update frequency for the power data is sufficient; and
  - determining a net power consumption of the application from the power data if the update frequency is sufficient.
14. (Original) The method of Claim 13, wherein the first time period and the second time period are of equal duration.
15. (Original) The method of Claim 13, further comprising transmitting an indication that the power data is invalid if the update frequency is insufficient.
16. (Original) The method of Claim 13, further comprising determining a new run-time to run the application if the update frequency is insufficient.
17. (Original) The method of Claim 16, further comprising:

collecting power data for the system running the application from the operating system over a third time period with the new run-time;

collecting power data for the system in the baseline state from the operating system over a fourth time period with the new run-time; and

determining a net power consumption of the application from the power data.

18. (Currently Amended) An article of manufacture comprising a machine accessible medium including sequences of instructions the sequences of instructions including instructions which when executed causes the machine to perform:

determining an amount of power used ~~for~~by a system running an application over a first time period from power data supplied to an operating system by a battery over the first time period;

determining an amount of power used ~~for~~by the system in a baseline state over a second time period from power data supplied to the operating system by the battery over the second time period; and

determining a net power consumption of the application from the amount of power used ~~by~~~~for~~ the system running the application and the amount of power used ~~by~~~~for~~ the system in the baseline state.

19. (Original) The article of manufacture of Claim 18, wherein determining the net power consumption of the application comprises computing a first net power value using power capacity data and a second net power data using drain rate data.

20. (Original) The article of manufacture of Claim 19, further comprising sequences of instructions including instructions which when executed performs generating an indication if the difference between the first and the second net power values exceeds a threshold value.

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21. (Currently Amended) The article of manufacture of Claim 18, further comprising sequences of instructions including instructions which when executed performs determining a systematic error of the power data used for determining the amount of power used ~~for~~by the system running the application.

22. (Original) The article of manufacture of Claim 21, wherein determining the systematic error comprises:

determining an update granularity of the power data; and

dividing the update granularity of the power data by the first time period.

23. (Original) The article of manufacture of Claim 21, further comprising sequences of instructions including instructions which when executed performs generating an indication if the systematic error exceeds a predetermined value.

24. (Currently Amended) The ~~article of manufacture~~method of Claim 21, further comprising sequences of instructions including instructions which when executed performs providing a suggested run-time to reduce the systematic error.

25. (Currently Amended) A power evaluation unit, comprising:

a data retriever unit to retrieve power data ~~supplied to~~from an operating system by a battery; and

a data processor unit to determine a net power consumption of an application from the power data.

26. (Currently Amended) The power evaluation unit of Claim 25, wherein the power data comprises power capacity and drain rate data ~~from a~~of the battery.

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27. (Original) The power evaluation unit of Claim 25, further comprising a data evaluation unit to determine a systematic error associated with a run-time for the power data.

28. (Original) The power evaluation unit of Claim 25, wherein the data evaluation unit determines a new run-time that reduces the systematic error.

29. (New) A method for managing power data, comprising:

determining net power consumption of an application from power data supplied to an operating system; and

determining a systematic error of the power data used for determining the net power consumption.

30. (New) The method of Claim 29, wherein determining the systematic error comprises determining an update granularity of the power data.